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EXAMINER	
SHIKHMAN, MAX	
ART UNIT	PAPER NUMBER
2609	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/12/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/760,082	ABE ET AL.	
	Examiner	Art Unit	
	Max Shikhman	2609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11,14,16,17* is/are rejected.

7)☒ Claim(s) *12,13,15* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *01/15/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 7 is objected to because of the following informalities: "*embeding*" should be changed to "embedding". Appropriate correction is required.

2. Claim 8 is objected under 37 CFR 1.75 as being a substantial duplicate of claim 7. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 4-10, 16 and 17 are rejected under 35 U.S.C. 102(b) as being unpatentable by Donescu (PGPUB-DOCUMENT-NUMBER: 20020051560). Donescu discloses as follows.

() **Regarding Claim 1**:

An image processing apparatus, comprising: a wavelet transform unit to perform compression encoding in a hierarchical manner by performing discrete wavelet transform on pixel values for each of one or more rectangular regions dividing image data;

([0067] "...a device for inserting a watermarking signal during the compression of a set of coefficients representing a physical quantity..."

[0098] "FIG. 1 ... transformation step E11."

[0099] ""Digital Wavelet Transform" or DWT.")

a digital watermark obtaining unit to obtain digital watermark data to be embedded into wavelet coefficients generated by the wavelet transform unit;

(E31 in Fig 4. [0146] "acquisition of a message to be inserted is acquired during an acquisition step E31.")

a characteristics extracting unit to extract characteristics of the wavelet coefficients for each of the rectangular regions;

(Donescu has access to all of the wavelet coefficients after DWT.

[0101] "E12 can possibly be implemented on all the transformed coefficients."

[0102] "a partitioning E13 of all the coefficients is implemented in order to divide this set of coefficients into distinct sub-regions."

[0105] "E14 ...storing the quantized coefficients is implemented so as to store each block of coefficients which will be used subsequently for inserting a watermarking signal.")

an embedding specification determination unit to determine an embedding specification of the digital watermark data with respect to the wavelet coefficients in accordance with the characteristics of the wavelet coefficients for each of the rectangular regions that are extracted by the characteristics extracting unit; and

(E30 in Fig 4. [0140] "E30 estimates the global capacity C of the digital image I, that is to say the number of information bits which can be inserted and decoded after compression."

[0145] At the end of this estimation step E30, a set of valid sub-blocks or supports is obtained, on which it is possible to insert an information bit, this set of valid supports being temporarily stored in a memory space Q.

[0102] a partitioning E13 of all the coefficients is implemented in order to divide this set of coefficients into distinct sub-regions.)

a digital watermark embedding unit to embed into the wavelet coefficients the digital watermark data for each of the rectangular regions in accordance with the embedding specification of each of the rectangular regions determined by t\ he embedding specification determination unit.

(E18 in Fig 1. E33 in Fig 4 inserts the message. [0131] E18...insertion proper of a watermarking signal on the quantized coefficients stored at the storage step E14 is performed.

[0150] A distribution step E32 is then implemented in order to distribute the information bits of the message on the different valid insertion supports stored in the memory Q.)

() **Regarding Claim 4**:

The image processing apparatus as claimed in claim 1, wherein the embedding specification determination unit determines an amount of embedding information of the digital watermark data with respect to the wavelet coefficients of each of the rectangular regions in accordance with frequency components included in each of the rectangular regions.

([0140] "E30 estimates the global capacity C of the digital image I, that is to say the number of information bits which can be inserted and decoded after compression.

[0143] The encoding capacity is therefore calculated independently of each block of coefficients. This capacity is defined as the number of information bits which can be inserted on sub-blocks

of the block in question, so that each information bit is detectable after compression with a probability of detection greater than a predetermined threshold value."
Wavelet coefficients represent the frequency components of the original image.)

() **Regarding Claim 5**:

The image processing apparatus as claimed in claim 1, wherein the embedding specification determination unit varies, for each of the rectangular regions, a subband that becomes a target into which the digital watermark data are embedded.

([0152] "Alternatively, certain message bits can be associated preferentially with certain spatio-frequency sub-bands of the spectral decomposition of the coefficients."
[0145] "At the end of this estimation step E30, a set of valid sub-blocks or supports is obtained, on which it is possible to insert an information bit, this set of valid supports being temporarily stored in a memory space Q."
As shown in Figure 2, subbands are partitioned into blocks. Every block gets its own number, Block 1 to Block j. We know which blocks belong to which subbands.
Therefore, the entire watermark can be embedded into a chosen subband.)

() **Regarding Claim 6**:

the embedding specification determination unit varies, for each of the rectangular regions, wavelet coefficients that become targets into which the digital watermark data are embedded.

([0145] At the end of this estimation step E30, a set of valid sub-blocks or supports is obtained, on which it is possible to insert an information bit, this set of valid supports being temporarily stored in a memory space Q.

[0150] "A distribution step E32 is then implemented in order to distribute the information bits of the message on the different valid insertion supports stored in the memory Q."
[0152] "Alternatively, certain message bits can be associated preferentially with certain spatio-frequency sub-bands of the spectral decomposition of the coefficients.")

() **Regarding Claims 7 and 8**:

An article of manufacture comprising one or more recordable media having a program that is installed on or interpreted by a computer, which when executed by the computer, causes the computer to perform a method comprising:

([0077] The present invention also relates to a computer and a digital image processing appliance, such as a camera or a digital photographic apparatus, adapted to implement the method of prior monitoring of the detectability of a watermarking signal and/or a method of determining a partitioning and/or a method of inserting a watermarking signal according to the invention.

[0078] Finally, the present invention concerns a computer program which can be read by a microprocessor, comprising portions of software code adapted to implement the method for the prior monitoring of detectability and/or the method of determining a partitioning and/or the method of inserting a watermarking signal according to the invention when said program is loaded into a computer.)

performing compression encoding in a hierarchical manner by performing discrete wavelet transform on pixel values for each of one or more rectangular regions dividing image data;

([0067] "...a device for inserting a watermarking signal during the compression of a set of coefficients representing a physical quantity..."

[0098] "FIG. 1 ... transformation step E11."

[0099] ""Digital Wavelet Transform" or DWT.")

obtaining digital watermark data to be embedded into wavelet coefficients generated by the wavelet transform unit;

(E31 in Fig 4. [0146] "acquisition of a message to be inserted is acquired during an acquisition step E31.")

extracting characteristics of the wavelet coefficients for each of the rectangular regions;

(Donescu has access to all of the wavelet coefficients after DWT.

[0101] "E12 can possibly be implemented on all the transformed coefficients."

[0102] "a partitioning E13 of all the coefficients is implemented in order to divide this set of coefficients into distinct sub-regions."

[0105] E14 ...storing the quantized coefficients is implemented so as to store each block of coefficients which will be used subsequently for inserting a watermarking signal.)

determining an embedding specification of the digital watermark data with respect to the wavelet coefficients in accordance with the characteristics of the wavelet coefficients for each of the rectangular regions that are extracted by the characteristics extracting unit;

(E30 in Fig 4. [0140] "E30 estimates the global capacity C of the digital image I, that is to say the number of information bits which can be inserted and decoded after compression."

[0145] At the end of this estimation step E30, a set of valid sub-blocks or supports is obtained, on which it is possible to insert an information bit, this set of valid supports being temporarily stored in a memory space Q.

[0102] a partitioning E13 of all the coefficients is implemented in order to divide this set of coefficients into distinct sub-regions.)

and embedding into the wavelet coefficients the digital watermark data for each of the rectangular regions in accordance with the embedding specification of each of the rectangular regions determined by the embedding specification determination unit.

(E18 in Fig 1. E33 in Fig 4 inserts the message. [0131] E18...insertion proper of a watermarking signal on the quantized coefficients stored at the storage step E14 is performed.

[0150] A distribution step E32 is then implemented in order to distribute the information bits of the message on the different valid insertion supports stored in the memory Q.)

() **Regarding Claim 9**:

An image processing apparatus, comprising: a characteristics extracting unit to extract characteristics of wavelet coefficients of one or a plurality of rectangular regions dividing an image;

(Donescu has access to all of the wavelet coefficients after DWT.

[0099] "Use is for example made of a discrete wavelet decomposition ("Digital Wavelet Transform" or DWT), making it possible to distribute the transformed coefficients in frequency sub-bands. "

[0101] "E12 can possibly be implemented on all the transformed coefficients."

[0102] "a partitioning E13 of all the coefficients is implemented in order to divide this set of coefficients into distinct sub-regions."

[0105] E14 ...storing the quantized coefficients is implemented so as to store each block of coefficients which will be used subsequently for inserting a watermarking signal.)

an embedding specification determination unit to determine, in accordance with the extracted characteristics of the wavelet coefficients for each rectangular region, an embedding specification of digital watermark data with respect to the wavelet coefficients; and

(E30 in Fig 4. [0140] "E30 estimates the global capacity C of the digital image I, that is to say the number of information bits which can be inserted and decoded after compression." [0145] At the end of this estimation step E30, a set of valid sub-blocks or supports is obtained, on which it is possible to insert an information bit, this set of valid supports being temporarily stored in a memory space Q.

[0102] a partitioning E13 of all the coefficients is implemented in order to divide this set of coefficients into distinct sub-regions.)

a digital watermark embedding unit to embed the digital watermark data into the wavelet coefficients for each rectangular region in accordance with the embedding specification of each rectangular region.

(E18 in Fig 1. E33 in Fig 4 inserts the message. [0131] E18...insertion proper of a watermarking signal on the quantized coefficients stored at the storage step E14 is performed. [0150] A distribution step E32 is then implemented in order to distribute the information bits of the message on the different valid insertion supports stored in the memory Q.)

() **Regarding Claim 10**:

The image processing apparatus as claimed in claim 9, wherein the characteristics of wavelet coefficients extracted by the characteristics extracting unit is based on the frequency components included in each of the rectangular regions.

(Donescu has access to all of the wavelet coefficients after DWT. Wavelet coefficients by definition represent frequency components.

[0068] "means of spatio-frequency transformation of said set of coefficients..."

[0098] "FIG. 1, the method of compressing such an image includes first of all a transformation step E11, which can typically be a spatio-frequency transformation making it possible to represent all the digital coefficients in a transformed domain, the coefficients being located both in the spatial domain and in the frequency domain."

[0099] "discrete wavelet decomposition making it possible to distribute the transformed coefficients in frequency sub-bands."

[0101] "E12 can possibly be implemented on all the transformed coefficients. It may possibly be a case of a scalar quantization by frequency sub-bands."

[0102] "a partitioning E13 of all the coefficients is implemented in order to divide this set of coefficients into distinct sub-regions."

[0105] "E14 ...storing the quantized coefficients is implemented so as to store each block of coefficients which will be used subsequently for inserting a watermarking signal.")

() **Regarding Claim 16**:

a subband of each rectangular region that becomes the target into which the digital watermark data are embedded may be varied for each rectangular region.

([0152] "Alternatively, certain message bits can be associated preferentially with certain spatio-frequency sub-bands of the spectral decomposition of the coefficients."

[0145] "At the end of this estimation step E30, a set of valid sub-blocks or supports is obtained, on which it is possible to insert an information bit, this set of valid supports being temporarily stored in a memory space Q."

As shown in Figure 2, subbands are partitioned into blocks. Every block gets its own number, Block 1 to Block j. We know which blocks belong to which subbands.

Therefore, the entire watermark can be embedded into a chosen subband.)

() **Regarding Claim 17**:

An article of manufacture comprising one or more recordable media having a program that is installed on or interpreted by a computer, which when executed by the computer, causes the computer to perform a method comprising:

([0077] The present invention also relates to a computer and a digital image processing appliance, such as a camera or a digital photographic apparatus, adapted to implement the method of prior monitoring of the detectability of a watermarking signal and/or a method of determining a partitioning and/or a method of inserting a watermarking signal according to the invention.

[0078] Finally, the present invention concerns a computer program which can be read by a microprocessor, comprising portions of software code adapted to implement the method for the prior monitoring of detectability and/or the method of determining a partitioning and/or the method of inserting a watermarking signal according to the invention when said program is loaded into a computer.)

extracting characteristics of wavelet coefficients of one or a plurality of rectangular regions dividing an image;

(Donescu has access to all of the wavelet coefficients after DWT.

[0101] "E12 can possibly be implemented on all the transformed coefficients."

[0102] "a partitioning E13 of all the coefficients is implemented in order to divide this set of coefficients into distinct sub-regions."

[0105] E14 ...storing the quantized coefficients is implemented so as to store each block of coefficients which will be used subsequently for inserting a watermarking signal.)

determining, in accordance with the extracted characteristics of the wavelet coefficients for each rectangular region, an embedding specification of digital watermark data with respect to the wavelet coefficients; and

(E30 in Fig 4. [0140] "E30 estimates the global capacity C of the digital image I, that is to say the number of information bits which can be inserted and decoded after compression."

[0145] At the end of this estimation step E30, a set of valid sub-blocks or supports is obtained, on which it is possible to insert an information bit, this set of valid supports being temporarily stored in a memory space Q.

[0102] a partitioning E13 of all the coefficients is implemented in order to divide this set of coef.ficients into distinct sub-regions.)

embedding the digital watermark data into the wavelet coefficients for each rectangular region in accordance with the embedding specification of each rectangular region.

(E18 in Fig 1. E33 in Fig 4 inserts the message. [0131] E18...insertion proper of a watermarking signal on the quantized coefficients stored at the storage step E14 is performed.

[0150] A distribution step E32 is then implemented in order to distribute the information bits of the message on the different valid insertion supports stored in the memory Q.)

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims **2** and **11** are rejected under 35 U.S.C. 103(a) as being unpatentable over Donescu (PGPUB-DOCUMENT-NUMBER: 20020051560) in view of Rhoads (PGPUB-DOCUMENT-NUMBER: 20040001608).

() Regarding **Claim 2**:

Donescu discloses all of the subject matter as described above except, "*the embedding specification determination unit determines an embedding intensity of the digital watermark data with respect to the wavelet coefficients of each of the rectangular regions in accordance with frequency components included in each of the rectangular regions.*"

Rhoads discloses "*embedding specification determination unit determines an embedding intensity of the digital watermark data with respect to the*

([0006] "When describing a watermark signal in the context of this document, intensity refers to an embedding level."

[0093] "increase watermark intensity in frequency bands and spatial areas where there is more image activity.

wavelet coefficients

([0085] "The watermark may be defined in the spatial or temporal domain, or some other transform domain such as a wavelet transform ... domain.")

of each of the rectangular regions

([0084] "The embedder depicted in FIG. 2 operates on blocks of image data (referred to as `tiles`)."

in accordance with frequency components included in each of the rectangular regions"

([0093] "increase watermark intensity in frequency bands and spatial areas where there is more image activity.)

As Rhoads discloses, it is desirable to embed the watermark into areas that can withstand more watermark signal content without substantially impacting image fidelity. Rhoads says to increase watermark intensity in frequency bands and spatial areas where there is more image activity. This makes the watermark imperceptible.
Therefore it would have been obvious for one of ordinary skill in the art at the time the invention was made to include Rhoads' method, increase watermark intensity in frequency bands and spatial areas where there is more image activity, into the method of Donescu, to make the watermark imperceptible.

() Regarding **Claim 11**:

Donescu discloses all of the subject matter as described above except, "*when a rectangular region includes a lot of high frequency components, the embedding specification*

determination unit determines that the embedding specification of the digital watermark data with respect to the wavelet coefficients is a strong embedding intensity."

Rhoads discloses *when a rectangular region…*

([0084] "The embedder depicted in FIG. 2 operates on blocks of image data (referred to as `tiles`)."

includes a lot of high frequency components,

([0093] "increase watermark intensity in frequency bands and spatial areas where there is more image activity.")

the embedding specification determination unit determines that the embedding specification of the digital watermark data

([0093] "FIG. 2, the embedder makes a perceptual analysis 218 of the input image 220 to identify portions of the image that can withstand more watermark signal content without substantially impacting image fidelity. Generally, the perceptual analysis employs a HVS model to identify signal frequency bands and/or spatial areas to increase or decrease watermark signal intensity to make the watermark imperceptible...")

with respect to the wavelet coefficients

([0085] "The watermark may be defined in the spatial or temporal domain, or some other transform domain such as a wavelet transform … domain.")

is a strong embedding intensity.

([0006] "When describing a watermark signal in the context of this document, intensity refers to an embedding level."

[0093] Returning to FIG. 2, the embedder makes a perceptual analysis 218 of the input image 220 to identify portions of the image that can withstand more watermark signal content without substantially impacting image fidelity. Generally, the perceptual analysis employs a HVS model

to identify signal frequency bands and/or spatial areas to increase ... watermark signal intensity to make the watermark imperceptible to an ordinary observer. One type of model is to increase watermark intensity in frequency bands and spatial areas where there is more image activity.)

As Rhoads discloses, it is desirable to embed the watermark into areas that can withstand more watermark signal content without substantially impacting image fidelity. Rhoads says to increase watermark intensity in frequency bands and spatial areas where there is more image activity. This makes the watermark imperceptible.

Therefore it would have been obvious for one of ordinary skill in the art at the time the invention was made to include Rhoads' method, increase watermark intensity in frequency bands and spatial areas where there is more image activity, into the method of Donescu, to make the watermark imperceptible.

1. **Claims 3 and 14** are rejected under 35 U.S.C. 102(e) as being as being unpatentable over Donescu (PGPUB-DOCUMENT-NUMBER: 20020051560) in view of Wang, "A REGION AND DATA HIDING BASED ERROR CONCEALMENT SCHEME FOR IMAGES" (Consumer Electronics, IEEE Transactions on. Publication Date: May 2001. Volume: 47, Issue: 2. On page(s): 257-262).

() Regarding **Claim 3**:

Donescu discloses all of the subject matter as described above except, "*the embedding specification determination unit determines an embedding intensity of the digital watermark data with respect to the wavelet coefficients of each of the rectangular regions depending on whether each of the rectangular regions includes a ROI (region of interest).*"

Wang discloses, "*the embedding specification determination unit determines an embedding intensity of the digital watermark data with respect to the wavelet coefficients of*

each of the rectangular regions depending on whether each of the rectangular regions includes a ROI (region of interest)."

(Figure 1 shows DWT or ROI.

Abstract, "ROI and region-of-background (ROB) of images are transformed into wavelet domain. Embedded data are truncated from the coded bit-stream of ROI and embedded into the wavelet coefficients of ROB. A fragile watermark is embedded into ROI to detect errors. When a data loss occurs in bit-stream of ROI, embedded data are extracted for reconstruction. ... this scheme has the capability of detecting and correcting malicious tampers in ROI.")

As Wang discloses in the abstract, "error concealment systems for still images compressed in discrete cosine transform (DCT) domain and transmitted over lossy channels are not suitable for JPEG2000 compressed images... a novel error concealment scheme for images compressed in wavelet domain is proposed." Therefore it would have been obvious for one of ordinary skill in the art at the time the invention was made to include the method of Wang, wavelet transform ROI and embed a fragile watermark, as shown in Figure 1, into the method of Donescu, to correct errors in wavelet-based JPEG 2000 ROI bitstream.

() Regarding **Claim 14**:

Donescu discloses all of the subject matter as described above except, "*the characteristics of wavelet coefficients extracted by the characteristics extracting unit is based on whether the rectangular region includes a region of interest (ROI).*"

Wang discloses, "*the characteristics of wavelet coefficients extracted by the characteristics extracting unit is based on whether the rectangular region includes a region of interest (ROI).*"

(Figure 1 shows DWT or ROI.

Abstract, "ROI and region-of-background (ROB) of images are transformed into wavelet domain. Embedded data are truncated from the coded bit-stream of ROI and embedded into the wavelet coefficients of ROB. A fragile watermark is embedded into ROI to detect errors. When a data loss occurs in bit-stream of ROI, embedded data are extracted for reconstruction. ... this scheme has the capability of detecting and correcting malicious tampers in ROI.")

As Wang discloses in the abstract, "error concealment systems for still images compressed in discrete cosine transform (DCT) domain and transmitted over lossy channels are not suitable for JPEG2000 compressed images... a novel error concealment scheme for images compressed in wavelet domain is proposed." Therefore it would have been obvious for one of ordinary skill in the art at the time the invention was made to include the method of Wang, wavelet transform ROI and embed a fragile watermark as shown in Figure 1, into the method of Donescu, to correct errors in wavelet-based JPEG 2000 ROI bitstream.

Allowable Subject Matter

2. Claims **12, 13** and **15** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

3. The following is a statement of reasons for the indication of allowable subject matter:

The prior art or record, Donescu, does not disclose, "when a rectangular region includes a lot of high frequency components, the embedding specification determination unit determines that an amount of embedding information of the digital watermark data is heavy."

The prior art or record, Donescu, does not disclose, "when a rectangular region includes a ROI, the embedding specification determination unit determines that the

embedding specification of the digital watermark data with respect to the wavelet coefficients is a strong embedding intensity."

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Acharya discloses, "Method of integrating a watermark into a compressed image."

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Max Shikhman whose telephone number is (571) 270-1669. The examiner can normally be reached on Monday-Friday 7:30AM-5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on (571) 272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Max Shikhman
3/1/2007

Shuwang Liu

SHUWANG LIU
SUPERVISORY PATENT EXAMINER